

~~SECRET~~

C 16318

FINAL REPORT

November 1952

CHAPTER FIVE

THE GERMAN GEOPHYSICAL SOCIETY

CHAPTER FIVE

THE GERMAN GEOPHYSICAL SOCIETY

1. Introduction

1. During the past year the writer has pointed out the possible scientific and military importance of some of the relatively unconventional areas of meteorology. These are areas in which scientists from fields other than conventional meteorology are working in increasing numbers. One of the very important questions asked prior to the visit to Europe, was to what extent European scientists were entering these unconventional fields. Although the title of this chapter indicates that most of it will be devoted to an account of the meeting of the German Geophysical Society in Hamburg from 24 August until 27 August, some space will be given to the question of European efforts in the unusual portions of meteorology. At the present time the writer will list the three areas to which his attention has been directed.

1. Solar-terrestrial studies with an emphasis on solar-weather relationships.
2. Cloud physics, including cloud seeding.
3. Numerical forecasting.

2. At the Hamburg meeting the writer tried to determine the extent to which German scientists were interested in and writing on problems included in the above three categories.

3. Major C. V. Hendricks of AFIP, Hqs. USAFE, was also at these meetings and it is assumed that a report regarding the meetings has been submitted by him.

III. Solar-terrestrial Relationships

1. This is an area of meteorology in which interest in the U. S. has received a considerable impetus during the past few years. A discussion of some aspects of this problem will be held in New York on 28 January 1953 at the joint meeting of the Institute of the Aeronautical Sciences and the American Meteorological Society. Such topics as solar variability, effects of solar variability on the upper atmosphere and effects of solar variability on the weather will be discussed. These are topics which may reveal results and trends of considerable significance to the kind of geophysical problems that affect an Air Force like ours.

2. There were several papers given at Hamburg which have a bearing on the above topics, but in general the interest there, and among the astronomers in Rome, was relatively small. The most important meteorologist in Germany interested in these problems is Prof. R. Scherhag of Berlin and Bad Kissingen. He has noted some remarkable temperature changes in the stratosphere above Berlin which appear to be connected with solar flares. Similar sudden rises of temperature in the layer between 300 mb and the tropopause have been reported by C. E. Palmer over the equatorial convergence zone. Except for the connection between these temperature changes and solar flares, these two observations are different, occurring at different heights in the atmosphere. The work of Dr. Scherhag was not reported in Hamburg, but the writer discussed it with him privately. Dr. Scherhag and his associate Dr. Ingrid Reincke of Bad Kissingen appear to be about the only German meteorologists who are working on problems of the meteorology of the stratosphere. The writer has no evidence from discussions or references that the USSR meteorologists or atmospheric

physicists have made contributions to this field comparable to those of

Craig, Wolf, Palmer, Willett, Kaurwitz, Fiehl and others in the U. S. The conclusion is inevitable that we have a real advantage here, and it is hoped that the January 28 meeting will result in increased interest. Since the writer is chairman of the American Meteorological Society Committee on the Upper Atmosphere, he was responsible for this topic. The influence of an interest in intelligence on such a choice is clearly demonstrated. Scientific meetings can be of great help to intelligence without compromising their integrity. This topic happens to be one of very great current interest.

III. Cloud Physics and Cloud Seeding

1. The important and controversial subject of cloud seeding, with its associated and complex field of cloud physics is another topic in which the Germans revealed very little interest, and virtually no activity at the Hamburg meeting. Prior to this meeting, the writer spent some time with Dr. P. J. Mason of the Imperial College of Science and Technology in London, and his important activities in these fields will be commented on in Chapter Nine. The USSR activity in these fields has not been analyzed by the writer, but it is certainly one which should receive special attention.

IV. Numerical Forecasting

1. The U. S. definitely leads in the studies which are designed to apply electronic calculators to the problem of the general circulation of the atmosphere and to forecasting. The European center for this is in Stockholm under Prof. G. G. Rossby, formerly at the University of Chicago. A U. S. citizen and a world leader in theoretical meteorology, Prof. Rossby has been close to the developments at the Institute for Advanced Study in

Princeton under Drs. von Neumann and Charney, and he has developed an important group of meteorologists in Stockholm. Several of Rossby's associates reported on the developments in numerical forecasting in Hamburg. It was easy to see, that except for K. Finkelman of Bad Kissingen, who had worked with Rossby, very few Germans were working in this field, although interest in it was high. It should be noted that during the current year the research group in Sweden is an international one, and it is already clear that one of the world's most important and imaginative centers of meteorological research is being developed there.

V. Concluding Remarks

1. In general the Hamburg meeting indicated that except for a few individuals, German meteorology was quite conventional. Such people as Rossby, Mason, Scherhag and a few others are looking seriously at the newer ideas. In Chapter Nine we will discuss in more detail some of the important meteorologists of Europe.